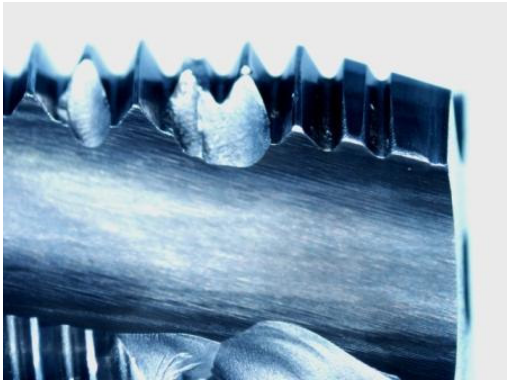
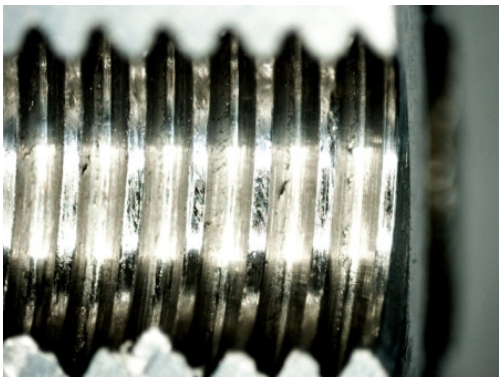
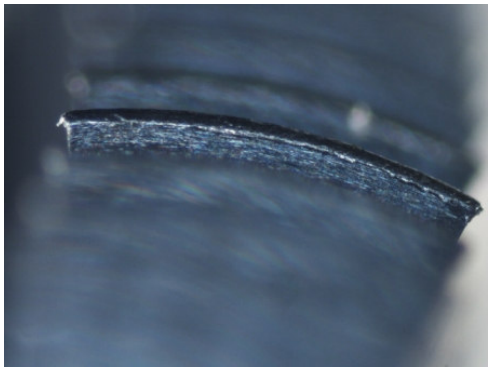
Trouble shooting in tapping

Tapping is a complex process and often the last machining operation performer on the workpiece. Therefore incorrect or faulty tap ping can compromise the quality of the entire workpiece.
Numerous factors influence the process:

- *Cutting parameters*
- *Drilling parameters*
- *Lubrication*
- *Machine conditions.*

The choice of correct tool is paramount in order to obtain high quality threads.
The following table summarizes the most common problems encountered during tapping and their possible solutions.

Problem	*Solution*	*How tap or thread is dammaged*
Chipped teeth on tap	➢ *Choose correct tap, with lower rake angle or longer chamfer.* ➢ *Reduce cutting speed* ➢ *Check drilled hole size is not too small* ➢ *Check tap algniment*	
Excessive tap wear	➢ *Improve quantity and quality of lubrication* ➢ *Use tap with more relief, longer chamfer, higher rake angle and/or coating*	
Chip clogging flutes	➢ *Choose correct tap for specific application (spiral flute angle suitable for depth of hole, rake angle and relief suitable for material)* ➢ *Increase lubricant pressure*	

Poor finish on threaded workpiece	➢ *Check wear of tap. Resharpen or change* ➢ *Improve quantity and quality of lubrication* ➢ *Choose suitable tap (Rake angle and relief angle)*	
Build-up edge or sticking	➢ *Use a suitable tap with correct rake angle and relief angle* ➢ *Increase the cutting speed* ➢ *Choose a correct coating* ➢ *Improve quantity and quality of lubrication*	
Crater wear	➢ *Choose a tap with higher hardness and/or appropriate coating* ➢ *Improve quantity and quality of lubrication*	
Tap breakage	➢ *Increase drilled hole size* ➢ *Check wear of tap. Resharpen or change* ➢ *Check drilled hole is not too shallow* ➢ *Reduce cutting speed* ➢ *Use tapping attachment with safety clutch*	
Oversized thread	➢ *Check tap tolerance is suitable for requested nut tolerance* ➢ *Choose appropriate tap for application (rake angle and relief suitable for material)* ➢ *Reduce feed rate or use tap attachment with compensation* ➢ *Reduce cutting speed* ➢ *Verify tap-hole alignment and workpiece fixture*	

Undersized thread	➢ *Check tap tolerance is suitable for requested nut tolerance* ➢ *Increase drilled hole size* ➢ *Check wear on tap. Resharpen or change* ➢ *Choose appropriate tap (higher rake angle and relief)* ➢ *Improve quantity and quality of lubricant*	
Richiesta di potenza eccessiva sul mandrino	➢ *Increase drilled hole size* ➢ *Check wear on tap. Resharpen or change* ➢ *Choose appropriate tap (higher rake angle and relief)* ➢ *Improve quantity and quality of lubricant*	